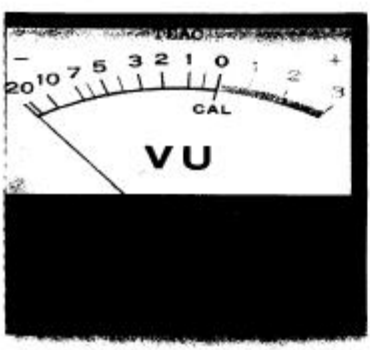
TEAC

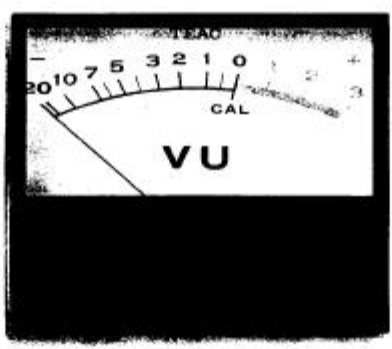
01-D-038

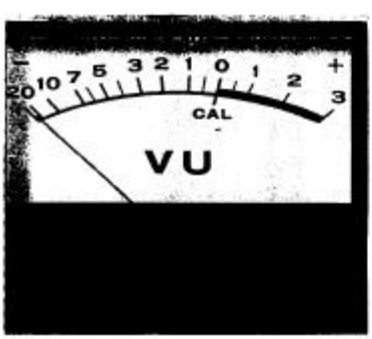
Make:TE Model:AN-300

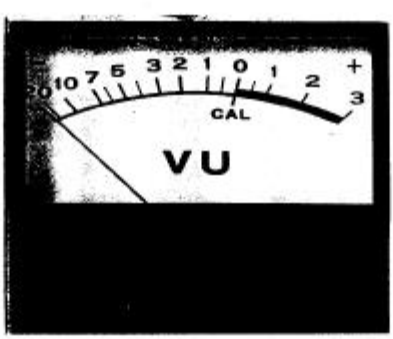
# INSTRUCTION MANUAL

## Noise Reduction Unit

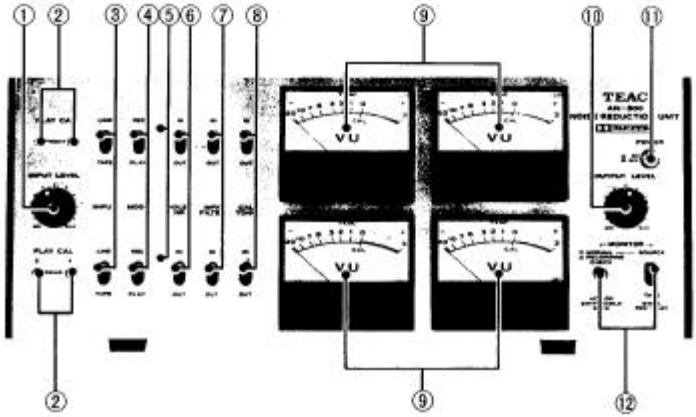


# Functions of the Controls




### ①Input Level Control (INPUT LEVEL)

Used to adjust the recording input level of all 4 channels simultaneously. Since the settings of the tape deck's line input level controls should not be changed after the deck has been calibrated to the Dolby level, this input level control must be used to adjust the recording level.

### ②Playback Calibration Adujsters (PLAY CAL)

Four provided, two in the upper half and another two in the lower half, each a semi-fixed resistor type control. They are used to make the Dolby-level calibration between the tape deck and the playback system of the AN-300. Each channel has its own adjustment.

### ③Input Selector Switches (INPUT–LINE/TAPE)

One for the upper half and another for the lower half. Used to select input signals for the processors of the AN-300 and can be set to LINE or TAPE. The upper channels are paired and independent of the lower pair of channels.

### ④Mode Selector Switches (MODE–REC/PLAY)

They are used to change the functional modes of the Dolby processors. Set these switches to REC for the recording (encoding) function and to PLAY for the playback (decoding) function. The upper channels are paired and independent of the lower pair of channels.
Incorporated in the AN-300 are four units of the processors, each pair easily set to recording or playback by these switches to provide increased versatility.

### ⑤Dolby Indicator Lamps

They indicate whether or not the Dolby processors of the AN-300 are switched on, and light up when the DOLBY NR switches are set to IN.

### ⑥Dolby Switches (DOLBY NR)

Set these switches to IN and the Dolby processors will be turned on. The Dolby Indicator lamps (5) also light up with these switches set to IN. Set them to OUT to turn off the Dolby processors. The upper channels are paired and independent of the lower pair of channels.

### ⑦Multiplex Filter Switches (MPX FILTER)

Set these switches to IN to Dolby-encode the output of an FM tuner. Since excessive leakage of the MPX carrier signal from the tuner may cause the Dolby processors to function erroneously, the filters are needed to remove the carrier contained in the tuner's output. The upper channels are paired and independent of the lower channels.

### ⑧Calibration Tone Switches (CAL TONE)

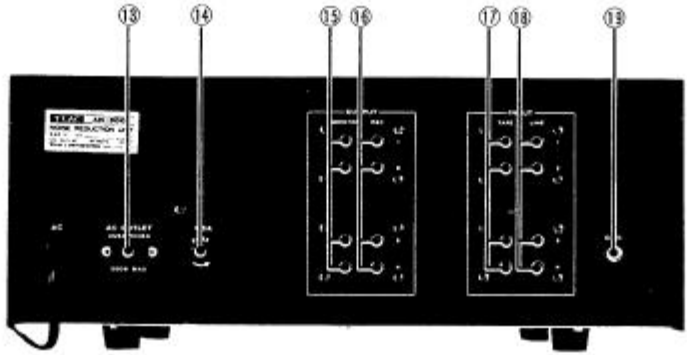
Used when calibrating the tape deck and the recording system to the AN-300 to the Dolby level. Set these switches to IN and the oscillators will become activated to transmit the modulated 400Hz Dolby calibration tone into the tape deck. Two paired channels are associated with each switch and each pair is independent of the other.

Note 1: When these switches are set to IN, no signal will be fed in through the input terminals. So, be sure to set them to OUT as soon as the recording calibration is completed.

Note 2: When either CAL TONE switch is set to IN, the pair of associated VU meters is inoperative.

### ⑨Dolby Level Meters

Four provided, one per channel. Used as level meters when calibrating the playback and recording systems of the AN-300 to the Dolby level. They can be used also as VU meters, however the meter's on the deck are the preferred reference for recording levels.




**⑩ Output Level Control (OUTPUT LEVEL)**
This adjusts the playback output of the AN-300 that will be fed into the amplifier. Set this level control to the position (as you would with a tuner or record player for ordinary output level) that will give the output level appropriate to the amplifier's ordinary input level.

**⑪ Power On-Off Switch (POWER)**
Press this switch to turn on the AN-300. Press it again to turn off the AN-300. When the AN-300 is connected with a tape deck, be sure to set this switch to ON position whether the DOLBY switch is to be IN or OUT.

**⑫ Monitor Switch (MONITOR)**
The Monitor Switch consists of two switches, one a push-button switch and the other a lever switch. One or the other of the two switches will be used according to type of the tape deck used as indicated below:

**A. Record Check Button (4CH OR SWITCHABLE DECK)**
This is the monitor switch to be used for monitoring when the AN-300 is used with a 4-channel tape deck or a 2-channel tape deck permitting no simultaneous monitoring. Push this switch and you can check the Dolby-encoded signal through monitoring. This button will also indicate the Dolby-encoded signal prior to it's recording on the tape deck when the deck has simultaneous monitoring.

**B. Simultaneous Monitor Switch (SIMUL REC/PLAY)**
This monitor switch is used when the AN-300 is used with a tape deck without simultaneous 2-channel monitoring. Set it to SOURCE to monitor the signal yet to be Dolby-encoded and to TAPE to monitor the Dolby-recorded signal reproduced and then decoded ("source" monitor).

**⑬ AC Power Outlet (AC OUTLET)**
Whether the Power On-Off Switch (11) is turned ON or OFF, the AC power needed to operate a tape deck or other component can be taken from this AC outlet.

Note: The maximum output capacity of this power outlet is 500W, so any component requiring more than 500W should not be connected.

**⑭ Fuse Holder**
Inserted in this fuse holder is a fuse contained in a glass tube. When the fuse is blown, contact your nearest **TEAC** dealer or representative for replacement or servicing.

**⑮ Monitor Output Terminals (MONITOR OUTPUT)**
Used for monitoring during recording or playback.

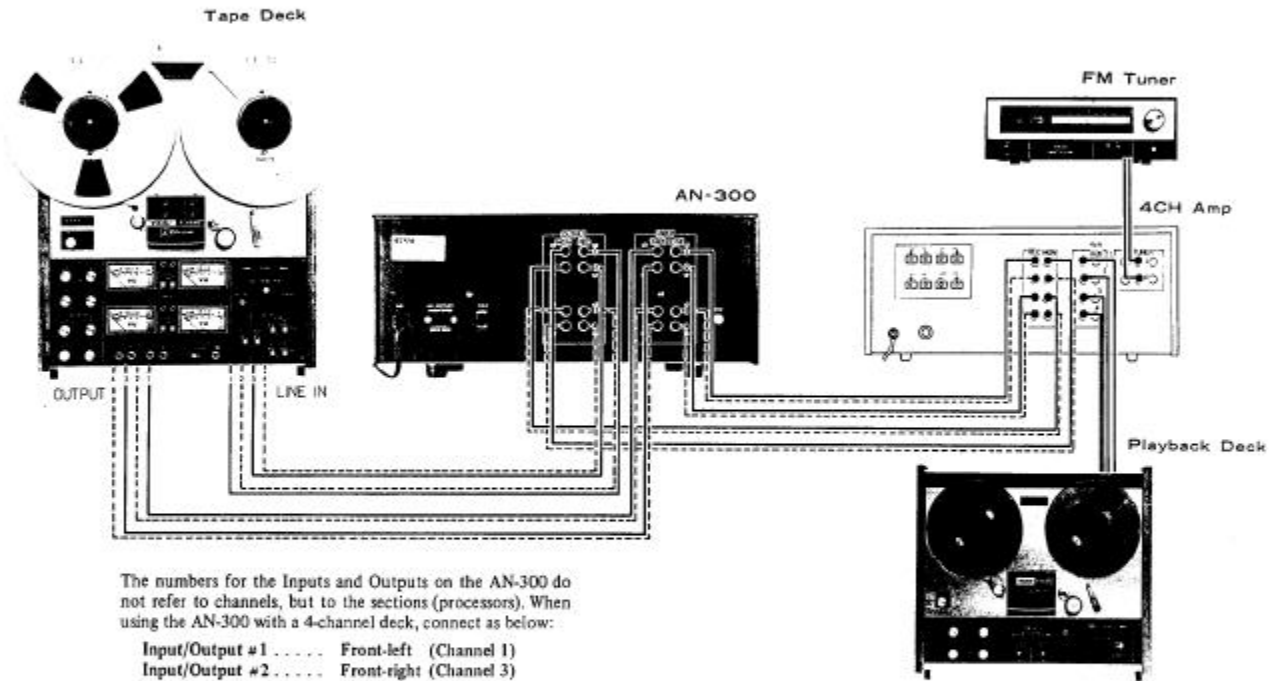
**⑯ Recording Output Terminals (REC OUTPUT)**
Output for recording is taken from these terminals when recording through the AN-300. The Dolby-encoded signal is carried when the Dolby NR switches are set to IN, and the non-Dolby-encoded signal is carried when set to OUT. Connect this output to the line input terminals of the tape deck.

**⑰ Tape Input Terminals (TAPE INPUT)**
These are the input terminals for the Dolby processors when in Playback. Connect these input terminals to the output terminals of the tape deck.

**⑱ Line Input Terminals (LINE INPUT)**
These are the input terminals for the Dolby processors when in Record. Connect them to the output terminals of the amplifier, mixer or other component.

**⑲ Grounding Terminal (GND)**

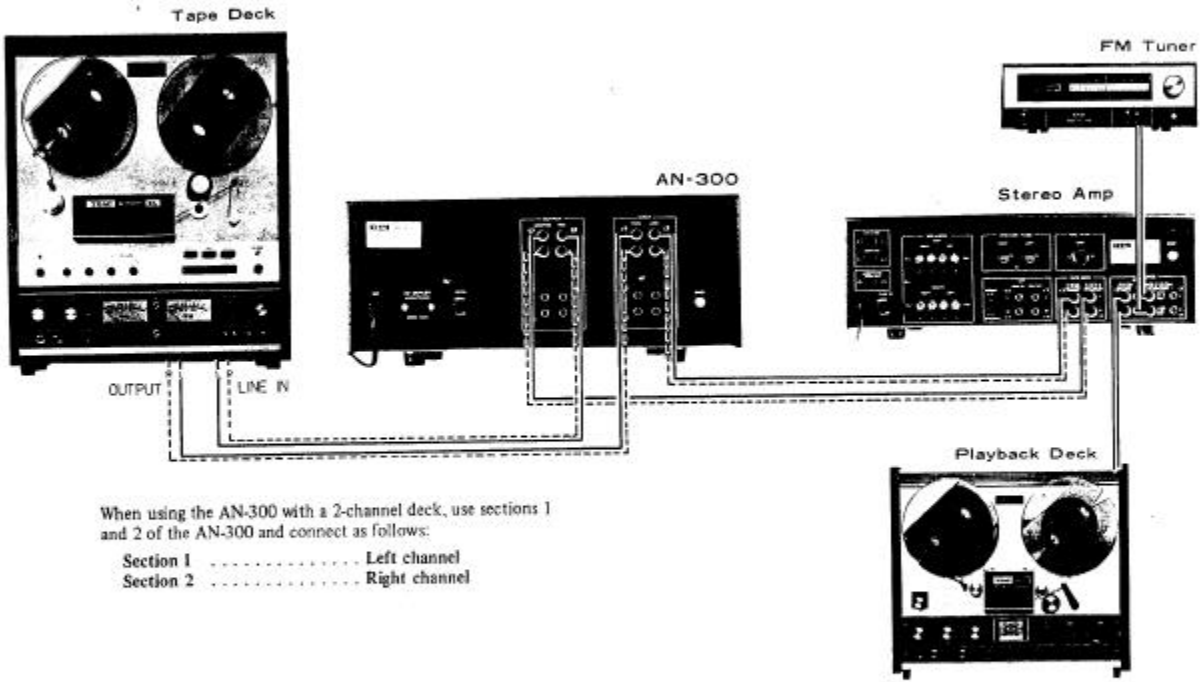
## Connetion for 4channel




The numbers for the Inputs and Outputs on the AN-300 do not refer to channels, but to the sections (processors). When using the AN-300 with a 4-channel deck, connect as below:

| | | |
|---|---|---|
| **Input/Output #1** . . . . . | **Front-left** | **(Channel 1)** |
| **Input/Output #2** . . . . . | **Front-right** | **(Channel 3)** |
| **Input/Output #3** . . . . . | **Rear-left** | **(Channel 2)** |
| **Input/Output #4** . . . . . | **Rear-right** | **(Channel 4)** |

## Connection for 2channel




When using the AN-300 with a 2-channel deck, use sections 1 and 2 of the AN-300 and connect as follows:

**Section 1** . . . . . **Left channel**
**Section 2** . . . . . **Right channel**

# Dolby level calibration/ For Tape Decks (2-channel) without Simultaneous Monitoring or 4-channel Tape Decks

The first thing to do for calibration of such tape decks is to set switches and controls of the components to the positions indicated below:

**AN-300**

INPUT switches . . . . . Set both the upper and lower switches to TAPE.
(For 2-channel tape decks, use the upper section only.)

MODE switches . . . . . Set both the upper and lower switches to PLAY.
(For 2-channel tape decks, use the upper section only.)

DOLBY NR switches . . Set both the upper and lower switches to IN.
(For 2-channel tape decks, use the upper section only.)

MPX FILTER switches . . Set both the upper and lower switches to OUT.
(For 2-channel tape decks, use the upper section only.)

CAL TONE switches . . . Set both the upper and lower switches to OUT.
(For the 2-channel tape deck, use the upper section only.)

MONITOR switches . . . . Set the pushbutton switch to NORMAL and the lever switch to SOURCE.

OUTPUT LEVEL control Set it to about the fifth scale.

**Tape Deck:**

(Set the tape deck to Playback position)
Monitor switch (if available) . . TAPE
Volume control . . . . . Minimum level still audible.

**Stereo Amplifier:**

Monitor switch . . . . . MONITOR
Volume control . . . . . Minimum level for comfort and the safety of your speakers.

## Decks with Output Level Controls

### Playback calibration:

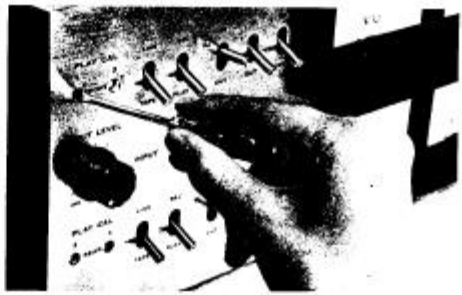
1 Load the tape deck with the Dolby-level tape and play it back. (For playback calibration with an open-reel tape deck use the same tape speed as in your anticipated listening playback.)

2 Using the output level controls of the tape deck, adjust the output level until the VU meters of the tape deck indicate 0 VU.

Note 1: For the tape deck whose output level controls have no effect on the deck's VU meters, set the output level controls to the position usually selected for ordinary use of the tape deck and keep the controls set to that position.

Note 2: For the tape deck with the single control serving as both recording/playback level controls, mark the 0 VU setting of the volume control for future reference.

3 Using the common screwdriver supplied, adjust the settings of the PLAY CAL adjusters (1 thru 4) until the respective Dolby Level Meters indicate CAL (0 VU).
(For calibration of a 2-channel tape deck, use only the upper two PLAY CAL adjusters (1 and 2).)



### Recording calibration:

1 Load the tape deck with a blank tape and set it to Record mode.

2 Reset the MODE and CAL TONE switches of the AN-300 as indicated below:

MODE switches . . . . . Reset both the upper and lower switches to REC.
(For 2-channel tape decks, use the upper section only.)

CAL TONE switches . . . Reset both the upper and lower switches to IN.
(For 2-channel tape decks, use the upper section only.)

3 Start recording and raise the input level gradually with the line input level controls of the deck and set the line input level controls tentatively to the position where the VU meters of the tape deck indicate 0 VU. Then, reset the tape counter to zero and record the Dolby tone for a few seconds.

Note: If your 4-channel deck has simultaneous tape monitoring, proceed directly to NOTE 2, below.

4 When the recording is over, the MODE and CAL TONE switches of the AN-300 reset as instructed in the paragraph 2 above should be reset again to their previous positions as indicated below:

MODE switches . . . . . Reset both the upper and lower switches to PLAY.
(For 2-channel tape decks, use the upper section only.)

CAL TONE switches . . . Reset both the upper and lower switches to OUT.
(For 2-channel tape decks, use the upper section only.)

5 Rewind the recorded tape back to zero, play back the recorded Dolby tone and read the Dolby Level Meters of the AN-300. If the Dolby Level Meters concerned indicate

CAL (0 VU), it indicates that the recording calibration has been completed. If not, repeat the calibration procedures starting with paragraph 2 (above) until the Dolby Level Meters indicate CAL (0 VU). In these repeated recording steps, however, you must increase or decrease the readings of step 3 as needed to compensate for the error.

Note 1: For the tape deck with the single volume control for both recording and playback level setting, mark the 0 VU setting of the control for future reference. Differentiate between the Playback and the Recording Calibrated markings. Always match the control to the mode of operation.

Note 2: If your 4-channel deck has simultaneous off-the-tape monitoring capability, then your deck is calibrated when your deck's meters indicate 0 VU in step 3 above. You may disregard steps 4 and 5.

6 After completing the calibration as above, reset both the upper and lower CAL TONE switches to OUT.

* After you have completed the Dolby-level calibration, do not change the settings of the deck's controls unless re-calibration has to be made as in the following cases:

*1. A different brand or type of tape is used.
*2. The calibrated setting of a control is changed by mistake.
*3. The tape deck is repaired or readjusted, or replaced with another tape deck.

## Decks without Output Level Controls

### Playback calibration:

1 Load the tape deck with the Dolby-level tape supplied as an accessory and play it back. (For playback with an open-reel tape deck use the same tape speed as for anticipated listening playback.)

Note: VU meters of some tape decks may not indicate 0 VU even when those of other tape decks normally would. Nevertheless, the calibration with such tape decks can be made just as perfectly as with other tape decks.

2 Using the common screwdriver supplied, adjust the setting of the PLAY CAL adjusters (1 through 4) of the AN-300 until the Dolby Level Meters indicate CAL (0 VU).

(For a 2-channel tape deck, only the upper two PLAY CAL adjusters (1 and 2) will be used for the calibration.)

### Recording calibration:

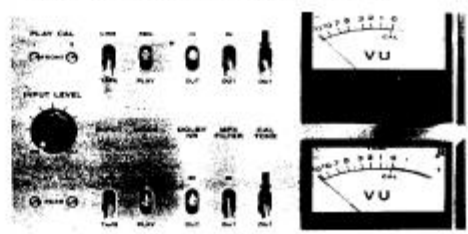
1 Load the tape deck with a blank tape and set it to the Record mode.
2 Reset the MODE and CAL TONE switches of the AN-300 as indicated below:

MODE switches . . . . . Reset both the upper and lower switches to REC. (For 2-channel tape decks, use the upper section only.)
CAL TONE switches . . . Reset both the upper and lower switches to IN. (For 2-channel tape decks, use the upper section only.)

3 Start recording, raise the input level of the tape deck gradually with the line input level controls of the tape deck and set the controls tentatively to the position where the VU meters of the deck indicate 0 VU. Then, reset the tape counter to zero and record the Dolby tone for a few seconds.
4 When the recording is over, the MODE and CAL TONE switches of the AN-300 set as instructed in paragraph 2 above should be reset again to their previous positions as indicated below:

MODE witches . . . . . Reset both the upper and lower switches to PLAY. (For 2-channel tape decks, use the upper section only.)
CAL TONE switches . . . . Reset both the upper and lower switches to OUT. (For 2-channel tape decks, use the upper one only.)

5 Rewind the recorded tape back to zero, play back the recorded Dolby tone and read the Dolby Level Meters of AN-300. If the Dolby Level Meters concerned indicate CAL (0 VU), it indicates that the recording calibration has been completed. If not, repeat the calibration procedures described above, starting with paragraph 2 above, until the Dolby Level Meters indicate CAL (0 VU). In these repeated recording steps, however, you must increase or decrease the readings of step 3 as needed to compensate for the error.
6 After completing the calibration as above, reset both the upper and lower CAL TONE switches to OUT.




* After you have completed the Dolby-level calibration, do not change the settings of the deck's controls unless re-calibration has to be made as in the following cases:

*1. A different brand or type of tape is used.
*2. The calibrated setting of a control is changed by mistake.
*3. The tape deck is repaired or readjusted, or replaced with another tape deck.

# Dolby level calibration/ 2 channel Tape Deck with Simultaneous Monitoring

**For 4-channel tape decks, the calibration procedures given under "For Tape Decks without Simultaneous Monitoring, or 4-channel Tape Decks" will apply whether the 4-channel tape deck is with or without simultaneous monitoring.**

The first step in calibration to the Dolby level is to set controls and switches of the components to the positions indicated below:

### AN-300

INPUT switches . . . . . Set the upper switch to LINE and the lower switch to TAPE.
MODE switches . . . . . Set the upper switch to REC and the lower switch to PLAY.
DOLBY NR switches . . . . Set both the upper and lower switches to IN.
MPX FILTER switches. . . . Set both the upper and lower switches to OUT.
CAL TONE switches. . . . . Set the upper switch to IN and the lower switch to OUT.
MONITOR switches . . . . . Set the pushbutton switch to NORMAL and the lever switch to TAPE.
OUTPUT LEVEL control . . Set it to around the fifth scale.

**Tape Deck:**
(The tape deck should be set to Playback position.)
Monitor switch . . . . . TAPE
MIC input level control . . . . Minimum

**Stereo Amplifier**
Monitor switch . . . . . MONITOR
Volume control . . . . . Minimum audible

### Tape Decks with Output Level Controls

**Playback calibration:**

1 Load the tape deck with the Dolby-level tape supplied as an accessory. (For playback with an open-reel tape deck use the same tape speed to be used during your anticipated listening playback.)
2 Using the output level controls of the tape deck, gradually increase and adjust the output level of the deck until the deck's VU meters indicate 0 VU.

Note: For the tape deck whose output level controls have no effect on the deck's VU meters, set the output level controls to the position usually selected for ordinary use of the tape deck and keep the controls set to that position.

3 Using the supplied common (−) screwdriver, adjust the settings of the PLAY CAL adjusters (marked 1 and 2) until the lower two Dolby Level Meters of the AN-300 indicate 0 VU for both the left and right channels.

**Recording calibration:**

1 Load the tape deck with a blank tape and set it to Record position. Use the same tape speed as for your anticipated recording session.
2 Start the deck recording the Dolby level tone from the AN-300 upper section. Gradually increase and adjust the input level with the deck's line input level controls until the lower two Dolby Level Meters of the AN-300 indicate 0 VU for both the left and right channels.
3 After completing the calibration as above, reset the upper CAL TONE switch to OUT.

* After you have completed the Dolby-level calibration, do not change the settings of the deck's level controls unless recalibration has to be made as in the following cases:

*1. A different brand or type of tape is used.
*2. The calibrated setting of a control is changed by mistake.
*3. The tape deck is repaired or readjusted, or replaced with another tape deck.

### Tape Decks without Output Level Controls

**Playback calibration:**

1 Load the tape deck with the Dolby-level tape supplied as an accessory and play it back.(For playback with an open-reel tape deck. Use the same tape speed to be used during your anticipated listening playback.)

Note: VU meters of some tape decks may not indicate 0 VU even when those of other tape decks normally do. Nevertheless, the calibration with such tape decks can be made just as perfectly as with other tape decks.

2 Using the common screwdriver supplied, adjust the setting of the PLAY CAL adjusters (1 and 2) of the AN-300 until the lower two Dolby Level Meters of the AN-300 indicate 0 VU for both the left and right channels.

**Recording calibration:**

1 Load the tape deck with a blank tape and start it for recording. Use the same tape speed as for your anticipated recording session.
2 Adjust the input level with the input level controls of the tape deck until the lower two Dolby Level Meters of the AN-300 indicate CAL (0 VU) for both the left and right channels.
3 After completing the calibration as above, reset the upper CAL TONE switch to OUT.

* After you have completed the Dolby-level calibration, do not change the settings of the deck's level controls unless recalibration has to be made as in the following cases:

*1. A different brand or type of tape is used.
*2. The calibrated setting of a control is changed by mistake.
*3. The tape deck is repaired or readjusted, or replaced with another tape deck.

# Playback

## Playback of Music Tapes

**A. Playback, using a 2-channel tape deck without simultaneous monitoring or a 4-channel tape deck:**

Use the AN-300 as the switching processor for either type of tape deck.

Set the AN-300 as indicated below and prepare for the playback.

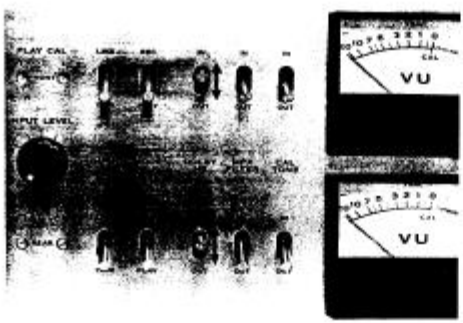
| | |
|---|---|
| INPUT switches | Set both the upper and lower switches to TAPE. (For 2-channel tape decks, use the upper section only.) |
| MODE switches | Set both the upper and lower switches to PLAY. (For 2-channel tape decks, use the upper section only.) |
| MPX FILTER switches | Set both the upper and lower switches to OUT. (For 2-channel tape decks, use the upper section only.) |
| OUTPUT LEVEL control | Set it to about the fifth scale. |

* Tape deck and amplifier operation
The amplifier and tape deck should be operated as explained in their respective owners manual with this exception:
Do not change the settings of the LINE OUTPUT level control of the deck after completing the Dolby level calibration.

Tape decks with a single volume control serving as both recording and playback level control:

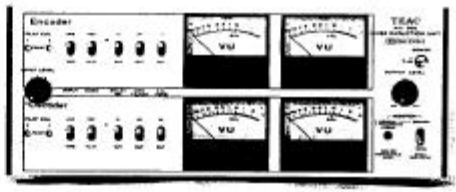
Set the level control to the 0 VU setting marked previously during the playback calibration.
With this type of the tape deck, the level control must be reset to the appropriate 0 VU setting marked during calibration each time the tape deck mode is changed.

**About the DOLBY NR switches:**
Set these switches to IN for playback of the Dolby-encoded tapes and to OUT for playback of ordinary music tapes.




**B. Playback, using tape decks with simultaneous 2-channel monitoring:**

Use the lower half section of the AN-300 as the decoders (for playback). The upper half section is used for encoding (record), so it will not be discussed here.




Set the AN-300 as indicated below and prepare for tape playback.

| | |
|---|---|
| INPUT switches | Set the upper switch to LINE and the lower switch to TAPE. |
| MODE switches | Set the lower switch to PLAY. |
| MPX FILTER switches | Set the lower switch to OUT. |
| CAL TONE switches | Set the lower switch to OUT. |
| OUTPUT LEVEL control | Set it to about the fifth scale. |

* Tape deck and amplifier operation
The amplifier and tape deck should be operated as explained in their respective owners manual with this exception:
Do not change the settings of the LINE OUTPUT level control of the deck after completing the Dolby level calibration.

**About the DOLBY NR switches:**
Set these switches to IN for playback of the Dolby-encoded tapes and to OUT for playback of ordinary music tapes.

# Recording

**A Recording, using a 2-channel tape deck without simultaneous monitoring or a 4-channel tape deck:**

Use all four processors of the AN-300 for encoding when a 4-channel tape deck is used. Use only the upper two processors for encoding when a 2-channel tape deck is used. Set the AN-300 as indicated below:

| | |
|---|---|
| INPUT switches | Set both the upper and lower switches to LINE. |
| MODE switches | Set both the upper and lower switches to REC. |
| DOLBY NR switches | Set both the upper and lower switches to IN. |
| MPX FILTER switches | Only when recording FM broadcasts set both the upper and lower switches to IN. |
| CAL TONE switches | Set both the upper and lower switches to OUT. |
| MONITOR switches | Set the pushbutton switch to NORMAL and the lever switch to SOURCE. |
| OUTPUT LEVEL control | Set it to about the fifth scale. |

**About operation of the tape deck and amplifier:**

The operations are much the same as without Dolby, but special care should be given to the following points:

1 Since the line input and output level controls of the tape deck have already been Dolby-calibrated, their settings should not be changed.
2 Set the MIC input level controls of the tape deck to Minimum. If set to a higher level, they may cause noise.

**B Recording, using a 2-channel tape deck with simultaneous monitoring:**

The four processors built into the AM-300 will be used in two paired sections, one used for recording and the other for playback.
The upper two processors are used as the encoding section (for recording) and the lower two processors as the decoding section (for playback). Prepare the AN-300 as indicated below.

| | |
|---|---|
| INPUT switches | Set the upper switch to LINE and the lower switch to TAPE. |
| MODE switches | Set the upper switch to REC and the lower switch to PLAY. |
| DOLBY NR switches | Set both the upper and lower switches to IN. |
| MPX FILTER switches | When recording FM broadcasts, set the upper switch to IN. Otherwise, keep them both OUT. |
| CAL TONE switches | Set both the upper and lower switches to OUT. |
| MONITOR switches | Set the pushbutton switch to NORMAL and the lever switch to TAPE. |
| OUTPUT LEVEL control | Set it to about the fifth scale. |

About operation of the tape deck and amplifier:

If the tape deck has combination volume controls serving for both the recording and playback level controls, set the volume control to the 0 VU position marked previously during the recording calibration.
Operating procedures for other tape decks are much the same as without Dolby, but give special care to the following points:

1 Since the line input and output level controls of the tape deck have already been Dolby-calibrated, their settings should not be changed.
2 Set the MIC input level controls of the tape deck to Minimum. If set to a higher level, they may cause noise.

**Recording Level Adjustment:**

After completing the preparations for recording as above, adjust the recording level properly.
Use the INPUT LEVEL control of the AN-300 to adjust the recording level.
In this case, the recording level may be determined with the Dolby Level Meters of the AN-300. However, the meters on the deck are the preferred reference.

**Monitoring:**

The AN-300 is provided with two monitor switches, one a push-button type and the other a lever type. For monitoring during recording, use the monitor switches as instructed below.

1 For tape decks with simultaneous 2-channel monitoring

Use the lever switch. Set it to TAPE and you can monitor the deck's output decoded by the Dolby processors. Set it to SOURCE to monitor the signal before it is Dolby-encoded.

Note: The pushbutton type MONITOR switch should be set to NORMAL in this case. With this switch set to RECORD CHECK, SOURCE monitoring becomes impossible even when the lever type MONITOR switch is set to SOURCE as instructed above.

2 Tape decks (2-channel) without simultaneous monitoring or 4-channel tape decks:

Use the pushbutton type MONITOR switch. With this switch depressed, you will monitor the encoded signal being returned from the tape deck. In this case, the signal you monitor will sound somewhat emphasized in the treble range.

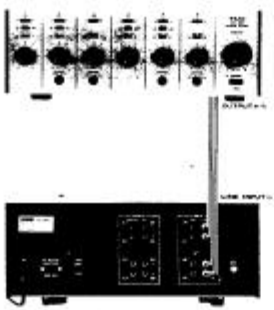
Note: The lever type switch must be set to SOURCE.

**About Recording from Microphones:**

When recording a microphone input through the AN-300 for Dolby-encoded recording, connect the output terminals of the microphone/amplifier mixer, an additional component required, to the LINE INPUT terminals of the AN-300.

Additional operational remarks:

When connections of the components are completed, you may start recording. However, it is advisable to recalibrate the tape deck and the AN-300 to the Dolby level before starting to record since the microphone recording often involves moving around of the components.
This live recording will be an original tape. If you record the Dolby tone in the beginning part of the tape during the recording calibration, you will find it very useful for playback calibration.



## CAUTIONS

### About Recording Tapes You Use:

Sensitivity of tape differs between different kinds of tape. With Dolby-recording, this sensitivity difference of tape results in a calibration setting for one type being improper for another type of tape, thus adversely affecting the Dolby-level recording. So, be sure to select a suitable, high quality recording tape. Whenever possible, use the same kind of tape used when the recording calibration was made. When a regular tape, low-noise tape or chrome tape, each greatly differing in sensitivity from the others, is replaced with one of the others, the recording calibration must be re-accomplished before starting to record.

**Tape decks with meter level selector switches:**
If the tape deck has a VU meter level selection switch, set it to HIGH or NORMAL as required by the tape. Then perform Dolby level calibration. After calibration, do not change this switch.

**With certain types of mis-operation, the VU meter might scale out with oscillations, or an echo sound may be heard. This occurs when the LINE volume is set to maximum for the Dolby Level setting causing feedback oscillation under the following conditions:**

1. With a 2-head deck if the AN-300 INPUT switch is set to TAPE while recording;
2. With a 3-head deck if the AN-300 INPUT switch is set to TAPE while the Tape Deck MONITOR switch is set to SOURCE;
3. With a 3-head deck when the AN-300 INPUT switch is set to TAPE while recording.

# Copying Dolby encoded tapes

## 1 To copy or duplicate Dolby-encoded tapes without decoding

Note: the tape deck to be used with the AN-300 for recording has been calibrated to the Dolby level: do not change the settings of its controls.

**2-channel Tape Decks without Simultaneous Monitoring, or 4-channel Tape Decks**

See page 3 for connections.
Playback deck is connected to AUX.

1 Set the AN-300 as indicated below

| | |
|---|---|
| INPUT switches | Set both the upper and lower switches to LINE. |
| MODE switches | Set both the upper and lower switches to PLAY |
| DOLBY NR switches | Set both the upper and lower switches to IN. |
| MPX FILTER switches | Set both the upper and lower switches to OUT. |
| CAL TONE switches | Set both the upper and lower switches to OUT. |
| MONITOR switches | Set the pushbutton switch to NORMAL and the lever switch to SOURCE. |
| OUTPUT LEVEL control | Set it to about the fifth scale |

2 Load the playback tape deck with the Dolby-level tape and play it back. If the tape deck has output level controls, adjust the output level until the VU meters indicate 0 VU.

Note: If the Dolby-encoded tape has the Dolby-level tone recorded, use this tone instead of the Dolby-level tape for the calibration.

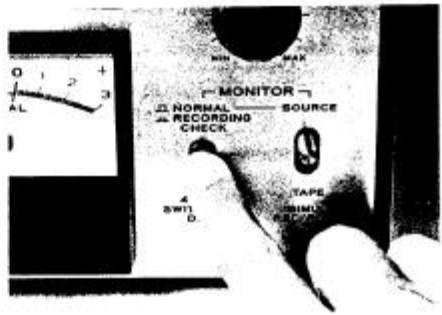
3 Using the INPUT LEVEL control of the AN-300, adjust the input level until the respective Dolby Level Meters of the AN-300 indicate CAL (0 VU).

Note: The indicated levels on the respective Dolby Level Meters may differ somewhat between each other due to possible gang control errors of the INPUT LEVEL control. If the difference between them is within ±1 dB of the 0 VU calibration level, it can be disregarded. If greater than that, correct it by means of the playback tape deck's output level controls.

After completing the Dolby-level calibration as above, you can start copying the tape. Once the copying operation is started, do not change the recording level even if the meter readings appear to be too high or too low.

**Monitoring:**

Use the pushbutton type MONITOR switch (RECORDING CHECK/4CH OR SWITCHABLE DECK). With this switch not depressed, part of the encoded signal input being sent to the recording tape deck can be monitored and heard decoded. When the same switch is depressed, you can monitor the encoded signal being fed back from the recording tape deck.




**2-channel Tape Decks with Simultaneous Monitoring:**

See page 4 for connections.
Playback deck is connected to AUX.

1 Set the AN-300 as indicated below.

| | |
|---|---|
| INPUT switches | Set the upper switch to LINE and the lower switch to TAPE. |
| MODE switches | Set both the upper and lower switches to PLAY. |
| DOLBY NR switches | Set both the upper and lower switches to IN. |
| MPX FILTER switches | Set both the upper and lower switches to OUT. |
| CAL TONE switches | Set both the upper and lower switches to OUT. |
| MONITOR switches | Set the pushbutton switch to NORMAL and the lever switch to SOURCE. |
| OUTPUT LEVEL control | Set it to about the fifth scale. |

2 Load the playback deck with the Dolby-level tape and play it back. If the deck has output level controls, adjust the output level with the output level controls until the VU meters of the deck indicate 0 VU.

Note: If the Dolby-encoded tape has the Dolby-level tone recorded, use this tone instead of the Dolby-level tape for the calibration.

3 Using the INPUT LEVEL control of the AN-300, adjust the input level until the upper two Dolby Level Meters of the AN-300 indicate CAL (0 VU.)

Note: The indicated levels on the respective Dolby Level Meters may differ somewhat between each other. If the difference between them is within ±1 dB of the 0 VU CAL level, it can be disregarded. If greater than that, correct it by means of the playback tape deck's output level controls.

After completing the Dolby-level calibration as above, you can start copying the tape. Once the copying operation is started, do not change the recording level even if the meter readings appear to be too high or too low.

**Monitoring:**

Use the lever type MONITOR switch (SIMUL REC/PLAY). Set this switch to SOURCE to monitor the SOURCE signal decoded and to TAPE to monitor the newly recorded signal decoded.

## 2 To copy or duplicate Dolby-encoded tapes after decoding(Dolby-encoded to non-Dolby-encoded)

1 Have another tape deck for recording and connect it as indicated below.

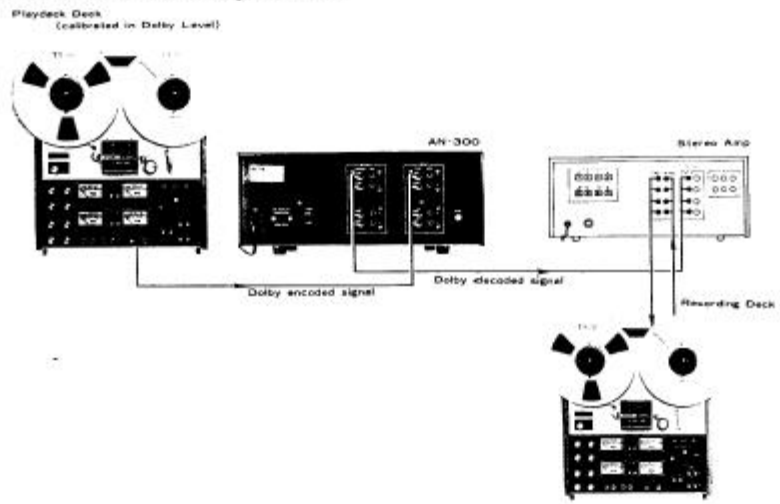
Note: The tape deck already connected to the AN-300 and calibrated to the Dolby level will be used as the playback tape deck, so the calibrated settings of its controls should not be changed.

2 Prepare the AN-300 for Playback as described in the PLAYBACK section of this manual, page 8.
3 Load the playback tape deck with the original Dolby-encoded tape and play it back.
4 With the steps taken as instructed above, the recording tape deck begins to receive the decoded signal through its input terminals. Adjust the recording level properly with the line input level controls of the recording tape deck.

**Monitoring:**

Monitoring during recording is controlled by means of the monitor switch on the amplifier. If the recording tape deck permits simultaneous monitoring, the tape playback output will be monitored. If not permitting simultaneous monitoring, the SOURCE signal before recording will be monitored. In either case, the program will not be Dolby-encoded.

## Dolby-encoded to non-Dolby-encoded



# Dolby FM

### About Dolby FM Broadcasts:

There are some radio stations applying the Dolby noise reduction system to FM broadcast in an effort to reduce noise occuring in both the transmitting and receiving systems.
For reception of such a Dolby FM broadcast, the Dolby calibration will be made as follows.

See page 3 or 4 for connections.

**A For approximate calibration without a broadcasted tone:**
If you have tuned in the Dolby-encoded broadcast after the calibration tone was transmitted, you may make a coarse calibration that will provide generally satisfactory decoding. With the components connected as described set the INPUT LEVEL control so that the VU meters have an average reading of approximately –4 VU. The meter needles should then swing between –7 VU and –1 UV. Again, this is only a coarse approximation of the calibrated setting and should be used only if you have missed the transmitted tone.

**B For accurate calibration from a broadcasted Dolby-level tone**

1 Set the AN-300 as indicated below.

| | |
|---|---|
| INPUT switches | Set the upper switch to LINE. |
| MODE switches | Set the upper switch to PLAY |
| DOLBY NR switches | Set the upper switch to IN. |
| MPX FILTER switches | Set the upper switch to IN. |
| CAL TONE switches | Set the upper switch to OUT. |
| MONITOR switches | Set the pushbutton switch to NORMAL and the lever switch to SOURCE. |
| OUTPUT LEVEL control | Set it to about the fifth scale. |

2 Receive the Dolby FM broadcast and, using the Dolby tone transmitted from the FM station, adjust with the INPUT LEVEL control until the upper Dolby Level Meters of the AN-300 indicate the CAL (0 VU).

Note 1: The indicated levels on the VU meters may differ somewhat between themselves. If the difference between them is within ±1 dB, it can be disregarded. Otherwise, adjust the tuner's level controls.
Note 2: After completing the Dolby-level calibration, do not change the setting of the INPUT LEVEL control.

Set as instructed above, the AN-300 will give the decoded FM tuner output through the MONITOR output terminals and the Dolby-encoded signal output almost identical (except the level being different) with the input through the REC OUT terminals.
When the Dolby FM broadcast is to be received without recording, set the amplifier's Monitor switch to TAPE and adjust the output to your listening level to enjoy the decoded FM broadcast.

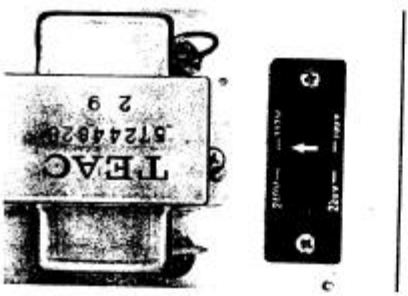
### To Record Dolby FM Broadcast:

The Dolby-encoded FM signal will be recorded as it is. Load the tape deck with a blank tape and start the tape deck for recording. Since the recording level has already been calibrated to the Dolby level, it should not be readjusted.

# Changing the power line setting

## Changing the power line setting

1. Remove the screws on the side panels and lift off the case.
2. In the right-rear corner on the top of the inside panel is a plug with an arrow pointing to a specific voltage. If it is pointing to your AC line voltage, leave it there.
3. If the indicated voltage is different from yours, carefully pull out the plug and position it so that the arrow points to the correct voltage. Rock it back into the correct position. After removing your hand, re-check to see that it now reads the correct voltage and is completely inserted.
4. Replace the screws and the cover. If you move to another country with a different line voltage, you will have to change it again.



CAUTION: DO NOT DISTURB ANY OTHER COMPONENT WITHIN THE COVERED COMPARTMENT. INTERNAL CALIBRATION SHOULD BE ACCOMPLISHED ONLY BY AUTHORIZED SERVICE CENTERS.

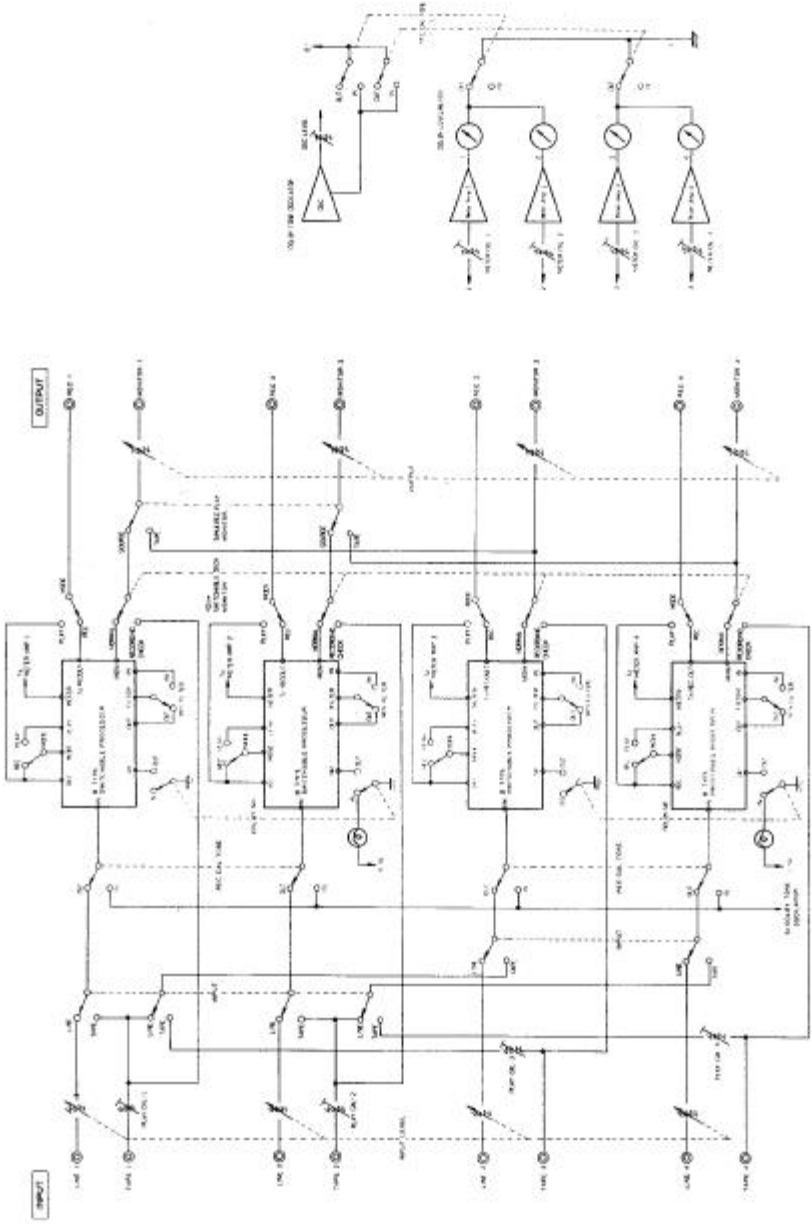
*US model is 117V only.

# Specifications

| | |
|---|---|
| Type | Dolby B type noise reduction system |
| Processor | 4 processing units, switch either playback or record<br>4-channel operation: record or playback<br>2-channel operation: simultaneous record and playback |
| Frequency Response | 20 – 20,000 Hz ± 1.5 dB |
| Increased SN Ratio | 10 dB at 10,000 Hz<br>5 dB at 1,000 Hz<br>better than 6 dB overall (B weighting network) |
| Input Sensitivity | Tape: 0.1 V<br>Line: 0.1 V |
| Input Impedance | Tape: 70,000 ohms<br>Line: 70,000 ohms |
| Outputs | Rec : 0.3 V for load impedance of 50,000 ohms or more<br>Monitor : 0.3 V for load impedance of 50,000 ohms or more |
| Harmonic Distortion | below 0.2% |
| Multiplex Filter | better than –35 dB at 19 KHz<br>better than –30 dB at 38 KHz |
| Channel Separation | better than 55 dB |
| Oscillator Output Level | 0.3 V |
| Tone Oscillator | 400 Hz Dolby B type tone |
| Power Requirements | 100/117/220/240 V AC, 50/60 Hz, 13W<br>[US model is 117 V AC, 60 Hz only] |
| AC Outlet | Unswitched: 500 W max. |
| Dimensions | 6-3/4" (H) x 16-1/8"(W) x 10-1/16" (D)<br>[172 (H) x 410 (W) x 255 (D) mm] |
| Weight | 16-1/2 lbs [7.5 Kg], net |
| Standard Accessories | Dolby level tape (open reel)<br>Dolby level tape (cassette)<br>Input-output connection cords<br>Fuse<br>Screwdriver<br>Silicone cloth |

* Features and specifications subject to change without notice.

# Block Diagram



Your new TEAC equipment has been manufactured under the strictest quality control procedures, each unit has been thoroughly checked at the factory. Should any damage have been incurred during transit or should you have any doubts as to its performance, contact your dealer as soon as possible.
Our investigation has shown that approximately 40% of the calls for service immediately after purchase result from improper operation of the equipment. Therefore it is important that you thoroughly read and understand this manual before placing the unit in operation. A lack of, or improper cleaning can also result in a degradation of performance. Careful observation of the cleaning and servicing hints contained in this manual will contribute to a lengthened trouble free unit life. Please consult the trouble shooting chart before seeking service as most common problems are throughly covered by this chart.

### Environmental conditions

Although this deck may be used in either the upright or horizontal positions, the upright position is preferred from the point of more efficient ventilation. Mounting locations to be avoided are:

### Locations of constant high temperature

Do not operate this unit near heating appliances or on top of an amplifier where amplifier heat would contribute to a rise in temperature. Do not place the unit where it will be exposed to direct summer sunlight. Temperature extremes will not only cause degradation of sound quality but will also shorten the useful operating life of the unit. Avoid temperatures higher than 100°F.

### Locations of high humidity

High humidity locations will shorten equipment life due to corrosion and possible fungus growth on printed circuit boards.

### Dusty environments

Your TEAC equipment is a precision machine and as such should be protected from dust. Operation in a dusty atmosphere will result in excessive head and bearing wear. Dust covers are available from your TEAC dealer for most TEAC components. Your tapes should also be kept dust free.

### Fluctuation of the supply voltage

Should you be in an area where line voltage fluctuation is severe, the use of an automatic voltage controller is recommended.

### Service

Should the equipment need repair, contact the dealer where it was purchased, or the authorized TEAC Service Center nearest you.

1) The Warranty period is described in the enclosed warranty card, read the card for complete details.
2) For repairs after expiration of the warranty period a service charge will be made in addition to the price of repair parts.
3) If only repair parts are required, place your order with your dealer, nearest TEAC authorized Service Center.

### Note

Although the unit may still be under the Warranty period, you may be charged for repairs made necessary by misuse, or damage incurred as a result of improper operation.

* "DOLBY", "Dolbyized", and the Double D " ◻◻ " Symbol are trademarks of Dolby Laboratories, Inc.

## GENERAL ADVICE ON USE OF THE AN-300:

Your AN-300, the newest noise reduction unit designed by TEAC, can be used with most of the tape decks on the market except for a few types not suited for use with a Dolby system. Also note that performance of the AN-300 will be brought into fuller play especially when it is used with a high-performance tape deck.

**Tape decks listed below are not suited or require extra attention for use with a Dolby system such as the AN-300.**

1 Tape decks equipped with the automatic recording level control (commonly known as AGC or ALC):
This type of tape deck automatically adjusts input signal to the proper recording level, thus not permitting Dolby-level calibration or alignment.

2. Tape decks equipped with a limiter device:
Basically, it presents no problem for use with a Dolby system, provided the Limiter Selector Switch is set to OFF for the Dolby calibration.

3 Tape decks equipped with a tone control:
For use with a Dolby system, set the tone control to the proper position where the deck gives flat frequency response.

4 When the playback characteristic differs so much between tape decks as to prevent inter-deck compatibility of the tapes, the decoding will not be achieved satisfactorily and the tone quality will therefore be damaged.

5 Tape recorders with built-in speakers and without line input terminals or line output terminals.
This type of tape recorder or deck permits no connection of a Dolby system, thus preventing use of a Dolby system with it.

### Dolby Terminology:

* Dolby Processor: Often called "Processor", the term generally refers to the Dolby circuit.
* Dolby-encode: The term refers to processing to obtain the Dolby-level recording characteristic. It is generally synonymous with output of, or processing by, a Dolby processor when recording.
* Dolby-decode: The term refers to processing to convert or "decode" the Dolby-encoded signal to its original form.
* Dolby Tone: It is the signal used for the Dolby-level calibration. A modulated tone, the signal identifies the Dolby level of the B-type Dolby system.

"Dolby," "Dolby system" and other Dolby terminology used in this manual all refer to those involving the B-type Dolby system.

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